

Lithodid crabs (Crustacea, Decapoda, Lithodidae) from Madagascar and La Réunion (SW Indian Ocean) with descriptions of two new species

par Enrique MACPHERSON

Abstract. — Five species of Lithodid crabs from Madagascar and La Réunion were studied. Two new species (*Paralomis stella* and *Lithodes mamillifer*) are described. Two other species (*Lithodes murrayi* and *Neolithodes* aff. *asperrimus*) are reported from Madagascar and La Réunion for the first time. A small specimen of an unidentified species of *Paralomis* from La Réunion is also recorded.

Résumé. — Cinq espèces de Lithodidae de Madagascar et de La Réunion sont étudiées. Deux (*Paralomis stella* et *Lithodes mamillifer*) sont nouvelles. Deux autres (*Lithodes murrayi* et *Neolithodes* aff. *asperrimus*) sont signalées pour la première fois à Madagascar et à La Réunion. Par ailleurs, un spécimen de *Paralomis* de La Réunion, trop petit pour être identifié mais appartenant à une espèce autre que *P. stella*, est également signalé.

E. MACPHERSON, *Instituto de Ciencias del Mar, Paseo Nacional s/n 08003, Barcelona, Spain.*

The family Lithodidae Samouelle, 1819, in the West Indian Ocean is very poorly studied. The first species of Lithodid crabs to be recorded from the area were *Lithodes murrayi* Henderson, 1888, and *Paralomis aculeata* Henderson, 1888, described from Prince Edward Islands. Subsequently, *Paralomis investigatoris* Alcock & Anderson, 1899, *P. indica* Alcock & Anderson, 1899, and *Neolithodes agassizii* (Smith, 1882), were described or reported by ANDERSON (1896), ALCOCK & ANDERSON (1899a, b) and ALCOCK (1901) from the Travancore and Malabar coasts.

Until the last decade, no other records were made in the West Indian Ocean : ARNAUD (1971) and postieriously KENSLEY (1977) cited *Lithodes murrayi* from Crozet Islands and South African coast, respectively. More recently, KENSLEY (1981) described a new species, *Paralomis roeleveldae*, from the coast off Durban.

This deficiency has since been partially rectified by interesting collections from the coasts of Madagascar made by A. CROSNIER from 1970 to 1973 with the "Vauban", research ship of the Centre ORSTOM at Nosy Be, and by the samples collected in 1982 during cruise MD 32/Réunion, with the "Marion Dufresne", research vessel of the TAAF (Territoires des Terres Australes et Antarctiques Françaises). Some others samples collected, later, in Madagascar by R. VON COSEL, as well as specimens from the South African Museum have also been examined.

The types of the new species and the other material reported upon are deposited in the collections of the Muséum national d'Histoire naturelle, Paris (MP) and the South African

Museum, Cape Town (SAM). Measurements given in this paper (LC × MW) are carapace length, excluding the rostrum (LC) and maximum carapace width, excluding marginal spines (MW).

***Paralomis stella* sp. nov.**

(Fig. 1; pl. I A-C)

MATERIAL EXAMINED. — La Réunion, trap., 350-500 m, 2.02.1974 : 2 ♂, 43 × 44 mm, 71 × 72 mm ; 1 ♀ ov., 49 × 50 mm ; 3 ♀, 39 × 39 mm-42 × 41 mm (MP-Pg 4254, 4255, 4267). — MD 32/REUNION, st. CA 76, trap, 21°41.5' S-55°17.6' E, 450-937, 24.08.1982 : 1 ♂, 56 × 59 mm (MP-Pg 4256) ; st. FA 96, 19°41.5' S-54°08.3' E, 350-750 m, 28.08.1982 : 1 ♂, 36 × 36 mm (MP-Pg 4257).

TYPES. — One male (71 × 72 mm) has been selected as holotype (MP-Pg 4254). The ovigerous female (MP-Pg 4267) is the allotype. The other specimens are paratypes (MP-Pg 4255 to 4257).

DESCRIPTION (holotype)

Carapace rounded or pentagonal in shape, length equal to width. Thickly covered with rounded, more or less prominent, granules of different sizes, without setae. Regions well defined, slightly convex. Gastric region somewhat more prominent than cardiac and branchial regions. Cardiac area roughly triangular, as prominent as branchial regions, separated from gastric region by deep transverse furrow.

Rostrum forwardly produced into a long central spine, weakly curved and slightly raised, bearing dorsolaterally at its base a pair of spines, shorter than central spine. Underside of central spine bearing a prominence tapering to a blunt or sharp point.

External orbital spine long, overreaching eyes, and slightly shorter than central rostral spine. Anterolateral spine smaller than external orbital spine, and similar in size to hepatic spine. Two or three small spines between the anterolateral and hepatic spines. Each branchial border, including the posterior margin, bearing 13-15 spines that are thicker on anterior half and posterolateral angle.

Second abdominal segment has small spines on external margins. Marginal and lateral plates of third segment fused.

Eyestalks carry several dorsal granules and 2 dorsal spinules near the cornea. Basal segment of antennal peduncle has 1 small spine on outer border. Second segment bears 1 long spine reaching the end of the penultimate segment and several granules on the outer margin. Antennal acicle has 1 long terminal spine, overreaching half of the last antennal segment, 1 long and 1 smaller spine on the outer edge. Inner border with 3-4 small granules.

Chelipeds subequal in length, right cheliped stouter than the left. Merus armed with several spines, larger on dorsal margin. Carpus bears three thick dorsal spines, several small spines on outer, ventral and inner borders. Propodal palm bears several rows, more or less defined, of small spines on the dorsal and outer sides. Tufts of hairs on dactylus and propodal extension.

Walking legs slender and depressed. Second pair (P3) of ambulatory legs slightly longer than first (P2) and third (P4) pairs. Latter 2 times length of carapace.

Third pair of walking legs with the basis-ischium armed with 2-3 thick spines on the

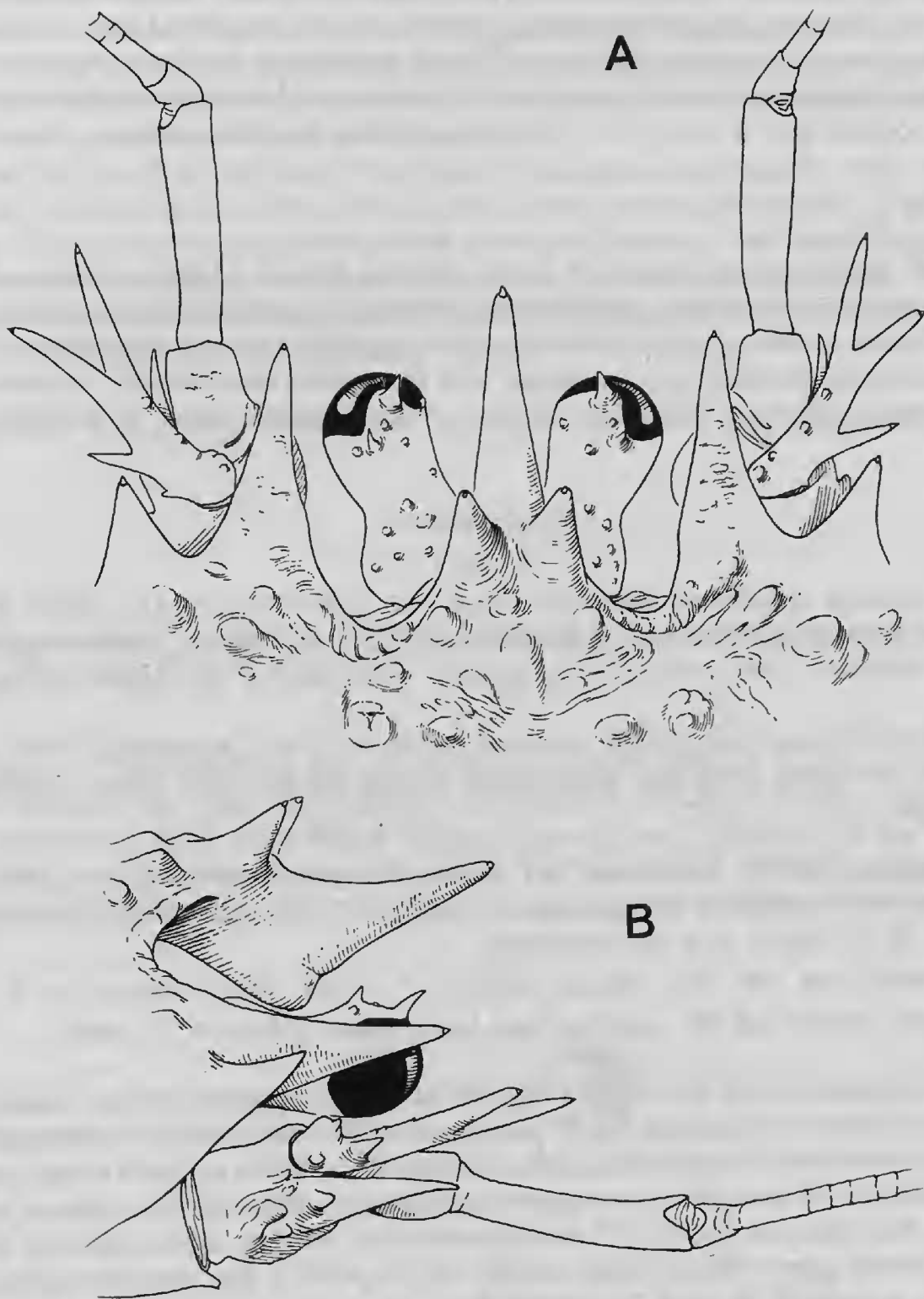


FIG. 1. — *Paralomis stella* sp. nov., holotype, ♂, LC = 71 mm, La Réunion, (MP-Pg 4254). Anterior part of the carapace : A, dorsal view ; B, lateral view.

dorsal and posterior borders. Merus about 1.6 times as long as carpus and 4 times as long as broad, with a row of spines (9-10) on anterior margin; dorsal side carries several well developed spines; posterior margin with two rows of spines. Carpus armed with several spines on anterior and dorsal sides. Propodus 5 times as long as broad and 0.8 times length of merus, with several rows of spines, one on the anterior border, two on the dorsal side, and two on the posterior border; ventral margins smooth, although carpus and propodus have one row of small spines near the anterior border. Dactylus 0.7 times propodus length, with small spines on the proximal portion and a row of 11 corneae spinules on the posterior margin.

VARIATIONS

The size of the specimens examined varies between 36 and 71 mm of carapace length.

No important variations have been observed between the specimens studied. The granules on the dorsal surface of the carapace are more acute (especially near the anterolateral edges) in the smaller specimens. Walking legs are longer and the articles more slender in males than in females. In several specimens the inner border of the antennal acicle is smooth, without granules.

REMARKS

No other known species of *Paralomis* from the Indian Ocean (*P. indica* Alcock & Anderson, 1899, *P. investigatoris* Alcock & Anderson, 1899, *P. aculeata* Henderson, 1888, and *P. roeleveldae* Kensley, 1981) exhibits the peculiar armature of the dorsal surface of the carapace.

From the descriptions and figures provided by ALCOCK and ANDERSON (1899 *a, b*) and ALCOCK (1901), *P. indica* although superficially similar to *P. stella* differs chiefly in the following aspects :

— the carapace is clearly pentagonal in *P. indica*, being more rounded in *P. stella*; on the other hand the dorsal surface of the carapace is thickly covered with rounded granules in *P. stella*, whereas in *P. indica* they are scattered;

— the rostrum has one long central spine in *P. stella*, clearly shorter in *P. indica*;

— the dorsal border of the walking legs bears more spines in *P. stella*.

From *P. investigatoris* the new species may be easily distinguished by the ornamentation of the dorsal surface of the carapace. In *P. investigatoris* the entire surface is densely covered with papilliform tubercles of similar size, each of which has a crown of small setae. In the new species, the surface of the carapace is covered by granules of different sizes, without setae. On the other hand, the antennal acicle of *P. investigatoris* has three or more spines on the outer edge and three small spines on the inner margin; in *P. stella* it has only two spines on the outer edge and is smooth or with 1-2 small granules on the inner margin.

P. aculeata may immediately be distinguished by the carapace uniformly covered with spiniform tubercles, being true spines on the anterior part of the gastric region and near the carapace edges.

P. roeleveldae is also distinguished from *P. stella* by the following characters : the

carapace is covered with short, rounded tubercles, each of which has several setae. The lateral edges of the carapace have few, but well developed spines. The central spine of the rostrum is short. The antennal acicle has four strong spines on the outer margin and several spines on the dorsal and inner borders.

Contrary to these features, in the new species, the carapace is covered by rounded granules, without setae. Each lateral edge of the carapace has more than 15 spines. The central spine of the rostrum is very long. The acicle has 2 spines on the outer margin being smooth or with 1-2 small granules on the inner margin.

Among the species of the genus, *Paralomis kyushupalauensis* Takeda, 1985, from Kyushu-Palau Ridge (see also BABA, 1986) is the closest relative to the new species. This resemblance lies mainly in the overall carapace shape and armature. However, the ambulatory legs are very different. In the new species, the dorsal sides of the walking legs are covered with numerous and well-developed spines, without granules (pl. I C), whereas in *P. kyushupalauensis* they are covered with granules and few spines.

ETYMOLOGY. — From the Latin, “*stella*”, star, in reference to the carapace shape.

***Paralomis* sp.**

(Fig. 2)

MATERIAL EXAMINED. — MD 32/REUNION, st. CP 11, 21°14.7' S-55°51.9' E, 900-955 m, 13.08.1982 : 1 ♀, approx. 8 × 7 mm (MP-Pg 4261).

REMARKS. — This small specimen seems to be clearly different to *Paralomis stella* n. sp. and other species of the area. The armature of the carapace shows a certain resemblance to *P. aculeata* Henderson, 1888, from Prince Edward Islands, with reference to the spines on the gastric region and ambulatory legs. However, the small size of the specimen makes its taxonomic status difficult to assess without examination of additional material.

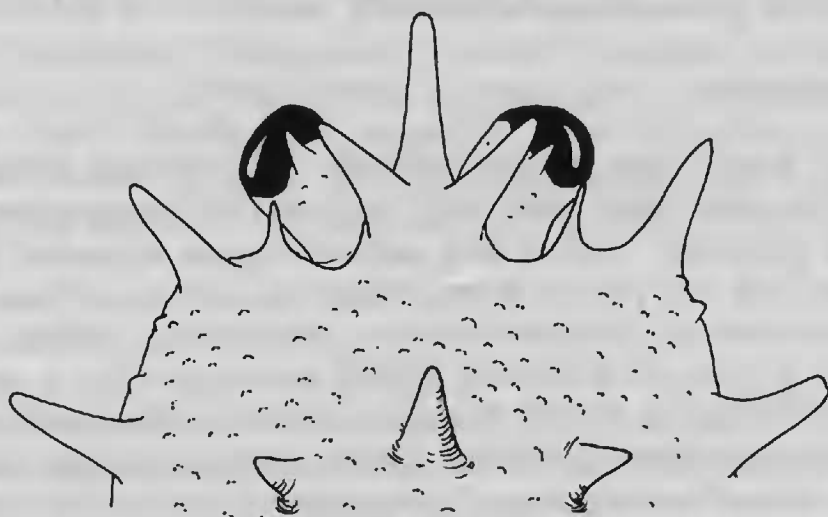


FIG. 2. — *Paralomis* sp., ♀, LC = 8 mm, La Réunion (MP-Pg 4261). Anterior part of the carapace, dorsal view.

Lithodes murrayi Henderson, 1888

(Pl. II C)

Lithodes murrayi; MACPHERSON, 1988 : 70, fig. 31, pl. 17 B-C (references and synonyms).
No *Lithodes murrayi*; KENSLEY, 1977 : 166, fig. 3 [= *L. mamillifer* sp. nov.].

MATERIAL EXAMINED. — La Réunion, trap, 350-500 m, 2.02.1974 : 2 ♀, 50 × 47 mm, 53 × 50 mm ; 1 ♂, 38 × 36 mm (MP-Pg 3502).

REMARKS. — *Lithodes murrayi* has been previously cited from Prince Edward Island (HENDERSON, 1888), Crozet Islands (ARNAUD, 1971) and New Zealand waters (YALDWYN and DAWSON, 1970). The specimens agree with the types and Crozet Islands material (see MACPHERSON, 1988, for sizes and localities).

This new record extends its range distribution to the central western Indian Ocean.

Lithodes mamillifer sp. nov.

(Pl. II A-B ; III A)

Lithodes murrayi; KENSLEY, 1977 : 166, fig. 3 (no HENDERSON, 1888).

MATERIAL EXAMINED. — Madagascar, N. O. "Vauban", CH 108, 22°18.9' S-43°01.1' E, 735-760 m, A. CROSNIER coll., 30.11.1973 : 2 ♀, 52 × 49 mm, 87 × 84 mm, 1 ♂, 40 × 37 mm (MP-Pg 3504 and 4260) ; N. O. "Mascareignes III", West Coast, north of Tuléar, trawl, 550-600 m, R. VON COSEL coll., 1986 : 2 ♀ ov., 156 × 140 mm, 158 × 145 mm (MP-Pg 4259) ; *idem*, CH 108, 22°15.4' S-43°00.8' E, 800 m, mud, R. VON COSEL coll., 26.11.1986 : 1 ♂, 66 × 62 mm, (MP-Pg 4258). — South Africa, R. V. "Meiring Naude", st. 83, off Natal, 28°00' S-32°46' E, 22.05.1976 : 1 ♀ ov., 123 × 118 mm (SAM-A 15004).

TYPES. — One female (87 × 84 mm), from N. O. "Vauban", CH 108, has been selected as holotype (MP-Pg 3504), the male (66 × 62 mm) from N. O. "Mascareignes III", CH 108, is the allotype (MP-Pg 4258). The other specimens are paratypes (MP-Pg 4259 and 4260 and SAM-A 15004).

DESCRIPTION (holotype)

Carapace slightly longer than broad, piriform. Regions well defined. Gastric region convex, more prominent than other areas with two pairs of strong spines, the anterior pair being larger than the posterior. Gastric and cardiac regions separated by deep transverse furrow. Cardiac region with one pair of strong spines and one pair of large granules between spines and gastro-cardiac furrow. Branchial region as prominent as cardiac, each with 4 spines : the anteriormost spine is strong and directed slightly anterolaterally ; a second spine, slightly smaller than the anterior one, at a level slightly posterior to the cardiac spines ; two small spines posterior to this spine. Each region with numerous small granules. Each spine on dorsal surface of carapace situated on a rounded prominence.

Rostrum with the anterior projection (*sensu* DAWSON & YALDWYN, 1985) long and bifid. Two dorsal spines and one strong and curved basal spine. The anterior projection is directed

upward in its proximal part (before dorsal spines), being turned downward in its distal part. The anterior projection is 0.5 times the carapace length.

External orbital spine well developed, overreaching end of eyes. Anterolateral spine similar in size to the external orbital. Space between anterolateral and hepatic spine smooth, without spines. Hepatic spine strong. Each branchial border with 8 spines; one similar in size to hepatic spine and four of them slightly smaller.

Second abdominal segment with two spines on the median plate and several small spines on external edges.

Eyestalks with small dorsal granules.

Basal segment of antennal peduncle with 1 small spine on outer terminal angle. Second segment with 1 small basal spine on external margin. One small spine on inner edge.

Right cheliped regenerating, being as massive as left. Merus with strong spines on terminal border. Carpus with 4 dorsal spines and several smaller spines on the external side. Propodal palm with two rows of small spines on dorsal margin and two rows of acute granules on external side. Dactylus and propodal extension with several tufts of hairs.

Walking legs long and slender. Second pair (P3) slightly longer than first (P2) and third (P4). Latter being 2.5 times the carapace length.

Basis-ischium of third leg with two spines and several spinulous granules. Merus more or less rounded in cross section, twice times longer than carpus and 6 times longer than broad; a row of 10 spines on anterior border, 3 being strong; dorsal side with several spines; posterior border with two strong subequal spines. Carpus with two strong spines, one proximal and one terminal, on the anterior edge; several spines scattered on dorsal border. Propodus 7 times as long as broad and about 1.5 times dactylus length; anterior margin with a row of 6 spines, posterior border with about 9 spines; several spines on dorsal side; ventral side of articles smooth. Dactylus weakly curved, circular in cross section, some spines on proximal margins.

VARIATIONS

The size of the specimens examined ranges between 40 and 158 mm carapace length.

The carapace in larger specimens is more rounded than in small ones. The anterior projection (*sensu* DAWSON & YALDWYN, 1985) is not bifid in one ovigerous female and is 0.3 (LC = 123 mm) to 0.8 (LC = 40 mm) times the carapace length; its distal part is almost horizontal in larger specimens, being clearly turned downward in smaller ones.

The chelipeds are similar in length, however (especially in males) right is larger than left. Walking legs, as in other Lithodids, are longer and have the articles more slender in males than in females. The smaller spines on the walking legs can disappear in large specimens. On the other hand, the granules on the dorsal surface of the carapace are more apparent in large specimens.

REMARKS

As was pointed out by DAWSON & YALDWYN (1985) and MACPHERSON (1988) several characters used to distinguish the species of *Lithodes* are sometimes variable and difficult to apply. The spinulation of the carapace and ambulatory legs (mainly the number of spines) and the shape of the rostrum seem to be the most valid characters to differentiate the species of the genus.

Lithodes mamillifer is close to the only other representative of the genus in the Indian Ocean, *L. murrayi* Henderson, which is found in South Indian Ocean and SW Pacific Ocean. However, a comparative study of specimens of the two species shows that they differ in several and constant aspects :

— the carapace margins are more spinulose in *L. murrayi* : each branchial margin has 7-8 spines in the new species, 10-11 in *L. murrayi* ; furthermore, the small spine between anterolateral and hepatic spines in *L. murrayi*, is absent in *L. mamillifer* ;

— the spines on the dorsal carapace surface are different : in *L. mamillifer* the spines are much broader and situated on a large rounded protuberance, and the more anterior branchial spine is always directed anterolaterally ; in *L. murrayi* the spines are not situated on a protuberance and the anterior branchial spine is vertical or directed slightly posterolaterally.

On the other hand, the rostrum (comparing specimens of similar range size) is longer in *L. mamillifer*. The ratio : rostrum/carapace length is 0.75 (LC = 40 mm) to 0.46 (LC = 87 mm) in *L. mamillifer* and 0.42 (LC = 38 mm) to 0.35 (LC = 89 mm) in *L. murrayi*. However, due to the variability of the rostrum length (sometimes broken or regenerating), this difference should be studied on more specimens.

Of the other species of the genus, the new species is also close to *Lithodes turritus* Ortmann, 1892, from Japan and China Seas and *L. ferox* Filhol, 1885, from the West African coast.

Lithodes turritus [1 ♀, LC = 110 mm, from Philippines Islands (MP-Pg 4263) examined ; see also the descriptions and illustrations from ORTMANN, 1892 ; SAKAI, 1971, 1976 ; BABA, 1986] has a similar number of spines on the dorsal surface and margins of the carapace. However, both species are easily distinguishable by the following characters :

— the anterior projection of the rostrum is straight in all its length in *L. turritus* ; in the new species it is directed upward in its proximal part, being horizontal or turned downward in its terminal part ; on the other hand the anterior projection is shorter and thinner in *L. turritus* than in *L. mamillifer* ;

— the spines on the dorsal surface of the carapace are not situated on a rounded protuberance in *L. turritus* ;

L. mamillifer resembles *L. ferox* (pl. III B) in the spiny prominences on the dorsal surface of the carapace. However, the differences between the two are in the following points (see MACPHERSON, 1988, for the material of *L. ferox* examined) :

— each branchial region has 4 dorsal spines in *L. mamillifer*, and always five in *L. ferox* : this character is the most important to distinguish *L. tropicalis* of the other species of the genus ;

— in *L. ferox* the cardiac region has two pairs of spines (the anterior one being larger) and one pair of granules between the anterior pair of spines and the gastro-cardiac furrow ; the new species has only one pair of spines and one pair of granules ;

— the anterior projection of the rostrum, comparing specimens of similar size, is longer in the new species ;

— the cross section of the merus of the walking legs is dorso-ventrally more flattened in *L. ferox* than in the new species. The row of spines on the anterior border is situated on a crest in *L. ferox*. In *L. mamillifer* the crest is absent.

ETYMOLOGY. — From the Latin “*mamilla*”, in reference to the rounded protuberances on the carapace.

Neolithodes aff. *asperrimus* Barnard, 1947
(Pl. I D-F)

MATERIAL EXAMINED. — Madagascar, N. O. “Vauban”, CH 131, 13°46' S-47°33' E, 1490-1600 m, A. CROSNIER coll., 20.01.1975 : 2 ♀, 20 × 17 mm, 53 × 45 mm (MP-Pg 3503); CH 138, 13°48.8' S-47°29.44' E, 1800-2000 m, A. CROSNIER coll., 27.02.1975 : 1 ♂, 13 × 10 mm (MP-Pg 4262).

REMARKS

The specimens examined are closely related to *N. asperrimus* Barnard. However, comparing this material with specimens of the same size from Atlantic coast of South Africa and Namibia (see MACPHERSON, 1988), several differences in the spinulation of the carapace are observed.

N. asperrimus has 6 long spines on each dorsal branchial area, with numerous small spines of different size and spinulous granules between them. The specimens from Madagascar also have 6 long spines, but the small spines are much shorter and spinulous granules are clearly more numerous. Unfortunately, the size of the spines and spinulous granules changes with carapace length. Taking into account that there are only three juveniles, the differences noted between specimens from the two areas are difficult to evaluate as specific ones until more material is available.

The specimens from Madagascar agree quite well with the specimens cited and figured by ALCOCK (1901) and ALCOCK & MAC GILCHRIST (1905) and classified as *N. agassizii* (Smith, 1882). The SMITH's species, from the West Atlantic ocean, seems different from the material collected in Madagascar. As DAWSON & YALDWYN (1985) pointed out, the Indian ocean species possibly is a different species (named *N. alcocki* by DAWSON & YALDWYN) close to *N. agassizii* (Smith) and *N. asperrimus* Barnard.

Acknowledgements

I am deeply indebted to A. CROSNIER (ORSTOM) and A. GUILLE, MD 32/REUNION cruise leader (Muséum national d'Histoire naturelle), for the opportunity to examine this interesting collection. Thanks are also due to E. L. DAWSON (New Zealand Oceanographic Institute), Mme M. DE SAINT LAURENT (Muséum national d'Histoire naturelle) and A. CROSNIER for their valuable comments and to M. GAILLARD and J. REBIÈRE, both from the Muséum national d'Histoire naturelle, for the illustrations. This study has been supported by a fellowship awarded by ORSTOM and achieved during a stay at the Laboratoire de Zoologie (Arthropodes) du Muséum national d'Histoire naturelle.

REFERENCES

- ALCOCK, A., 1901. — A descriptive Catalogue of the Indian Deep-sea Crustacea Decapoda Macrura and Anomala in the Indian Museum. Being a revised account of the Deep-sea Species collected by the Royal Indian Marine Survey Ship Investigator. Calcutta, iv + 286 p., 3 pl.
- ALCOCK, A., & A. R. S. ANDERSON, 1899a. — Natural History Notes from H. M. Royal Indian Marine Survey Ship "Investigator", Commander T. H. Heming, R. N., commanding. Series III, n°2. An Account of the Deep-sea Crustacea dredged during the Surveying season 1897-1898. *Ann. Mag. nat. Hist.*, (7), 3 : 1-27, 278-292.
- ALCOCK, A., & A. R. S. ANDERSON, 1899b. — Crustacea. Pt. VII. Illustrations of the Zoology of the Royal Indian Marine Surveying Steamer Investigator, pl. 36-45.
- ALCOCK, A., & A. R. S. MAC GILCHRIST, 1905. — Crustacea. Pt. XI. Illustrations of the Zoology of the Royal Indian Marine Surveying Steamer Investigator, pl. 68-76.
- ANDERSON, A. R. S., 1896. — Natural History notes from R. I. M. Survey Steamer "Investigator", Commander C. F. Oldham, R. N., commanding. An Account of the Deep-Sea Crustacea collected during the season 1894-95. Ser. II, n° 21. *J. Asiat. Soc. Beng.*, 65 (pt 2), 1-4 : 88-106.
- ARNAUD, P. M., 1971. — *Lithodes murrayi* Henderson, 1888 (Crustacea, Decapoda, Anomura) dans les eaux côtières des îles Crozet (SW de l'Océan Indien). *Thetys*, 3 : 167-172.
- BABA, K., 1986. — In : BABA, K., K.-I. HAYASHI & M. TORIYAMA, Decapod crustaceans from continental shelf and slope around Japan. Japan Fish. Res. Conserv. Ass. Tokyo, edit., 336 p., 22 text-figs., pls. 176.
- BARNARD, K. H., 1947. — Descriptions of new species of South African Decapod Crustacea, with notes on synonymy and new records. *Ann. Mag. nat. Hist.*, ser. 11, 13 : 361-392.
- DAWSON, E. W., & J. C. YALDWYN, 1985. — King crabs of the world or the world of king crabs : an overview of identity and distribution — with illustrated diagnostic keys to the genera of the Lithodidae and to the species of *Lithodes*. In : Proc. Int. King Crab Symp., Anchorage, Alaska : 69-106.
- HENDERSON J. R., 1888. — Report on the Anomura collected by H. M. S. Challenger during the years 1873-76. *Rep. sci. Res. Voy. H. M. S. Challenger*, Zool., 27 : i-vii, 1-221, pls. 1-21.
- KENSLEY, B., 1977. — The South African Museum's Meiring Naude Cruises. Part 2. Crustacea, Decapoda, Anomura and Brachyura. *Ann. S. Afr. Mus.*, 72 (9) : 161-188, fig. 1-17.
- 1981. — The South African Museum's Meiring Naude Cruises. Part 12. Crustacea Decapoda of the 1977, 1978, 1979 cruises. *Ann. S. Afr. Mus.*, 83 (4) : 49-78, fig. 1-11.
- MACPHERSON, E., 1988. — A revision of the family Lithodidae Samouelle, 1819 (Crustacea, Decapoda, Anomura) from the Atlantic Ocean. *Monogr. Zool. Mar.*, 2, 153 p.
- ORTMANN, E. E., 1892. — Die Decapoden-Krebse des Strassburger Museums. IV Thiel, Die Abtheilungen Galatheidea und Paguridea. *Zool. Jb. (Syst.)*, 6 : 241-326, pls. 11-12.
- SAKAI, T., 1971. — Illustrations of 15 species of crabs of the family Lithodidae, two of which are new to science. *Res. Crust.*, Tokyo, 4 (5) : 1-49, pls. 1-21, tabl. 1-3.
- 1976. — Crabs of Japan and the Adjacent Seas. (3 vol.). 1, English text, xxix + 773 p.; 2, Figures, 1-16 p., 251 pls.; 3, Japanese text, 461 p., Tokyo, Kodansha Ltd.
- TAKEDA, M., 1985. — A New Species of *Paralomis*, the Crab-shaped Anomura (Crustacea, Decapoda), from the Kyushu-Palau Submarine Ridge. *Bull. natn. Sci. Mus.*, Tokyo, ser. A, 11 : 137-140.
- YALDWYN, J. C., & E. W. DAWSON, 1970. — The stone crab *Lithodes murrayi* Henderson : the first New Zealand record. *Rec. Dom. Mus.*, Wellington, 6 (17) : 275-284.

PLATE I

A-C. — *Paralomis stella* sp. nov., holotype, ♂, LC = 71 mm, La Réunion, (MP-Pg 4254) : A, dorsal view ; B, carapace, dorsal view ; C, third left walking leg.

D-F. — *Neolithodes* aff. *asperrimus* Barnard, 1947, ♂, LC = 53 mm, Madagascar, (MP-Pg 3503) : D, dorsal view ; E, carapace, dorsal view ; F, third left walking leg.

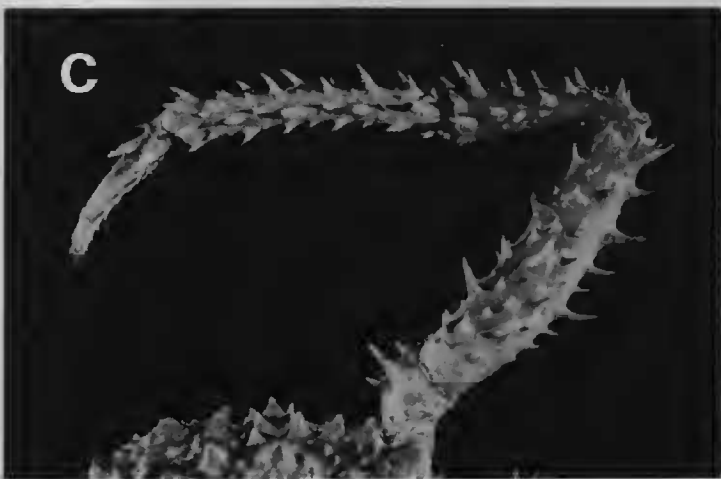
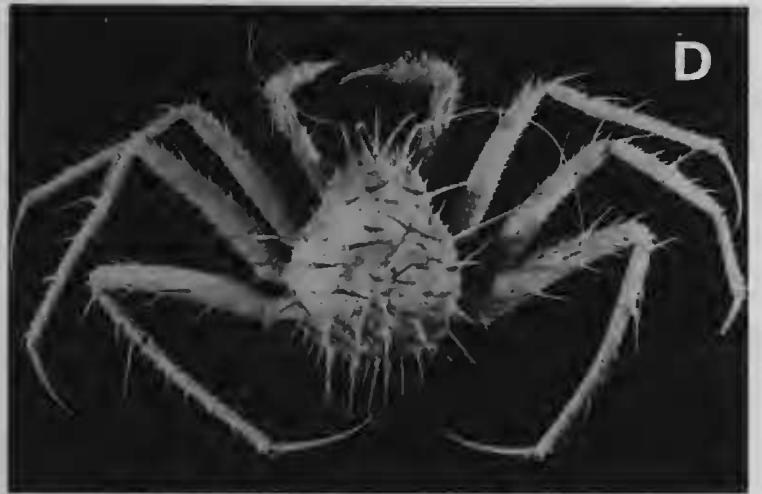
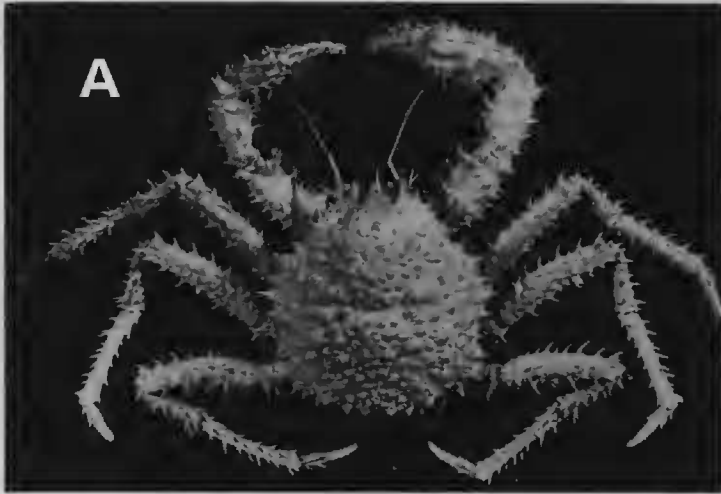


PLATE I

PLATE II

- A. — *Lithodes mamillifer* sp. nov., holotype, ♀, LC = 87 mm, Madagascar, (MP-Pg 3504) : dorsal view.
B. — *Lithodes mamillifer* sp. nov., paratype, ♀ ov., LC = 156 mm, Madagascar, (MP-Pg 4259) : carapace, dorsal view.
C. — *Lithodes murrayi* Henderson, ♀, LC = 53 mm, La Réunion, (MP-Pg 3502) : carapace, dorsal view.



PLATE II

PLATE III

- A. — *Lithodes mamillifer* sp. nov., allotype, ♂, LC = 66 mm, Madagascar, (MP-Pg 4258) : carapace, dorsal view.
B. — *Lithodes ferox* Filhol, ♂, LC = 63 mm, West Coast Africa, off Congo, (MP-Pg 2695) : carapace, dorsal view.

